Fermilab — Fermi National Accelerator Laboratory

Technical Division-Machine Shop

Procedure Qualification Record	No. *Fermi PQR SS-2-001*	Date: *1/15/2010*

Revision: __ Date: _____ Remarks:

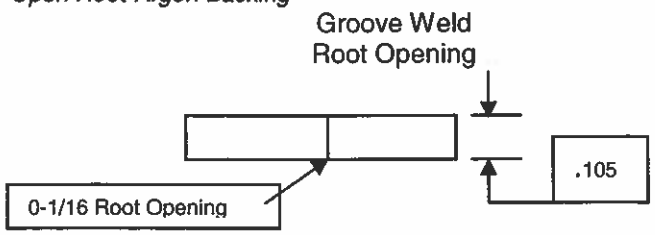
Welding Process/Weld Type: *GTAW/Manual*	*In accordance with:*	*Fermi WPS SS-2-001*

Joints (QW-402)

Weld Type:	*Square Groove*
Backing:	*Argon Gas*
Root Opening:	*0-1/16"*
Root Face:	*.105"*

Details:

Open Root-Argon Backing



Base Metals (QW-403)			**Post Weld Heat Treatment (QW-407)**
Material Spec., Type or Grade:			**Type:** *No PWHT performed*
SA 240 plate type 304	**To**	*SA 240 plate type 304*	**Temperature:**
P Number 8	**to**	**P Number** 8	**Time:**
Thickness of Coupon (in.)		*.105"-.210"*	
Diameter of Test Coupon (in.)			

Filler Metals (QW-404)	*Autogenous*
SFA Specification	
AWS Classification:	
Filler Metal F-No.:	
Weld Metal Analysis A-No.:	*8*
Size of Filler Metal (in.):	
Weld Deposit "t"(in.):	
Filler Metal Product Form:	

Gas (QW-408)	**Percent Composition**	
Gas	**Mixture%**	**Flow Rate**
Shielding *Argon*	*99.99%*	*15 CFH*
Trailing: *None*		
Backing: *Argon*	*99.99%*	*15 CFH*

Other: *Maintain Argon purge on backside of plate for entire weld. Use alignment fixture to position plates for welding and purging. Non-Pulsing Current*

Positions (QW-405)	
Position of Joint:	*Flat-1G*
Weld Progression:	
Other:	

Electrical Characteristics (QW-409)	
Current/Polarity: *DCEN*	
Amps:	**Volts:** *10.4*
Tungsten Type & Size:	*3/32"Ø EWTh-2*
Other: *Non-Pulsing Current*	

Preheat (QW-406)	
Preheat Temperature:	*50 ° F Minimum*
Interpass Temperature:	*350° F Maximum*
Minimum Weld Temp.	*50 ° F*

Technique (QW-410)	
Travel (ipm): *As Required*	**Oscillation:** *None*
String/Weave Bead:	*Stringer*
Multiple/Single Pass (per side)	*Single*
Multiple/Single Electrode:	*Single Electrode*
Nozzle/Gas Cup Size:	*#6*

Fermi National Accelerator Laboratory / Kirk Road and Pine Street / P.O. Box 500 / Batavia, IL 60510 / 630.840.3000 / www.fnal.gov / fermilab@fnal.gov
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Fermilab	*Fermi National Accelerator Laboratory* *Technical Division-Machine Shop*	
Procedure Qualification Record	**No. *Fermi PQR SS-2-001***	Date: *1/15/2010*
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Tensile Test (QW-150)

Specimen No.	Width (in.)	Thickness (in.)	Area (Squared in.)	Ultimate Total Load (lbs.)	Ultimate Stress (PSI)	Failure Type & Location
1	*0.7570*	*0.1020*	*0.0772*	*6361.0*	*82400*	*HAZ/Ductile*
2	*0.7550*	*0.1010*	*0.0763*	*6207.0*	*81300*	*HAZ/Ductile*

Guided Bend Test (QW-160)

Figure Number & Type	Result	Figure Number Type	Result
QW-462.3 (a) Face Bend	*Pass*	QW-462.3 (a) Root Bend	*Pass*
QW-462.3 (a) Face Bend	*Pass*	QW-462.3 (a) Root Bend	*Pass*

Welder's Name : *William Gatfield*	ID : *04609N*	Weld Stamp : *W-12*

Visual Examination: *Acceptable*	**X-ray per ASME Section IX, QW-191.2.**

Radiography Conducted By:		

Tests Conducted by:	*Exova Inc.*	*Ref. #T914241*	**Date:** *12/07/2009*

Welding of coupon Verified by:	*Roger Hiller 00362N #11272009-2RH*	Date: *1/15/2010*

We certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

PQR prepared by: ***Fermi National Accelerator Laboratory***

Authorized Representative _____ ID# *1/15/2010*

Use of Fermilab Welding Procedures and Welder Qualifications for non-Fermilab work shall be at the sole risk and responsibility of the Subcontractor, and the Subcontractor shall indemnify and save Fermilab and the government harmless from any and all claims, demands, actions or causes of action, and for any expense or loss by reason of Subcontractor's and their employees possession and use of Fermilab procedures and qualifications.

Fermi National Accelerator Laboratory / Kirk Road and Pine Street / P.O. Box 500 / Batavia, IL 60510 / 630.840.3000 / www.fnal.gov / fermilab@fnal.gov
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